Velodyne®

SPL-800R, SPL-1000R, SPL-1200R

User's Manual

DSP-Controlled Home Theater Subwoofer

Caution

To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

The lightning flash with arrowhead symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the subwoofer.

1. Read Instructions — All safety and operating instructions should be read before the subwoofer is operated.
2. Retain Instructions — The safety and operating instructions should be retained for future reference.
3. Heed Warnings — All warnings on the subwoofer and in the operating instructions should be adhered to.
4. Follow Instructions — All operating and use instructions should be followed.
5. Water and Moisture — The subwoofer should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool or the like.
6. Carts and Stands — The subwoofer should be used only with a cart or stand recommended by the manufacturer.
7. Wall or Ceiling Mounting — The subwoofer should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation — The subwoofer should be situated so that its location or position does not interfere with its proper ventilation. For example, the subwoofer should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat — The subwoofer should be situated away from heat sources such as radiators, heat registers, stoves, or other subwoofers that produce heat.
10. Power Sources — The subwoofer should be connected to a power supply only of the type described in the operating instructions or as marked on the subwoofer.
11. Power-Cord Protection — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point at which they exit from the subwoofer.
12. "Caution: To prevent electrical shock, match wide blade of plug to wide slot, fully inserted."
13. Cleaning — The subwoofer should be cleaned only as recommended by the manufacturer.
14. Nonuse Periods — The power cord of the subwoofer should be unplugged from the outlet when left unused for a long period of time.
15. Object and Liquid Entry — Care should be taken so that objects do not fall and liquids are not spilled onto the enclosure.
16. Damage Requiring Service — The subwoofer should be serviced by qualified service personnel when:
    a. The power-supply cord or plug has been damaged.
    b. Objects have fallen or liquid has been spilled into the subwoofer.
    c. The subwoofer has been exposed to rain.
    d. The subwoofer does not appear to operate normally or exhibits a marked change in performance.
    e. The subwoofer has been dropped or damaged.
17. Servicing — The user should not attempt to service the subwoofer beyond what is described in the operating instructions.
18. The apparatus shall not be exposed to dripping or splashing water and that no objects filled with liquids, such as vases be placed on the apparatus.
19. The disconnect device (the appliance inlet) shall remain readily operable (easily assessable).

All other servicing should be referred to qualified service personnel.

CONGRATULATIONS!

Congratulations on your purchase of a Velodyne Small Plays Loud-Remote (SPL-R) subwoofer. This system represents the state-of-the-art in low frequency reproduction. Read and follow the instructions below to insure safe and proper system operation.

Warning!
To prevent fire or shock hazard, do not expose this equipment to rain or moisture. To avoid electrical shock, do not open speaker enclosure or amp chassis cover. Please observe all warnings on the equipment itself. There are no user serviceable parts inside. Please refer all service questions to your authorized Velodyne dealer.

Prior to Installation

Please unpack the system carefully. Remove all staples used to seal the carton as they can scratch the cabinet. Please save the carton and all packaging materials for future use. Record the serial number in the space provided on the warranty card for future reference.

PRODUCT FEATURES

- DSP-Controlled
- 4 selectable preset modes for customized listening
- Automatic 6-band room equalizer with microphone included
- Night-mode setting
- Mute control
- Woofer
  - 8” (6.5” piston diameter) subwoofer with 2.5” high-temp voice coil and 107 ounce magnet/204 ounce motor structure (SPL-800R)
  - 10” (8” piston diameter) subwoofer with 3” voice coil and 162 ounce magnet/346 ounce motor structure (SPL-1000R)
  - 12” (9.7” piston diameter) subwoofer with 3” voice coil and 162 ounce magnet/346 ounce motor structure (SPL-1200R)

- Built-in 2000 watts Dynamic/1000 watts RMS high efficiency Class D amplifier
- Adjustable (40 to 120 Hz) low-pass crossover (defeatable)
- Line-level (RCA) inputs and outputs
- Speaker-level inputs with five way binding post connections
- Signal sensing auto turn on/off (defeatable)
- Variable volume control
- Selectable phase control (0, 90, 180 or 270 degrees)
- Frequency response of 28-120 Hz (SPL-800R), 24-120Hz (SPL-1000R), 22-120Hz (SPL-1200R)
- Magnetically shielded for video use (SPL-1000R and SPL-1200R)
- Multiple staggered low-pass crossovers; 12 dB/octave initial, 48 dB/octave ultimate
- Driver Displacement Control circuit to prevent over excursion and amp clipping
- Blue power indicator LED
- High-excursion EPDM rubber surround
- Oversized spider for linearity at high excursion

INSTALLATION

Your new Velodyne subwoofer provides for a number of installation options. Read all the installation information below in order to determine which installation option is best for your system. Remember to perform all installation procedures with system power turned off.

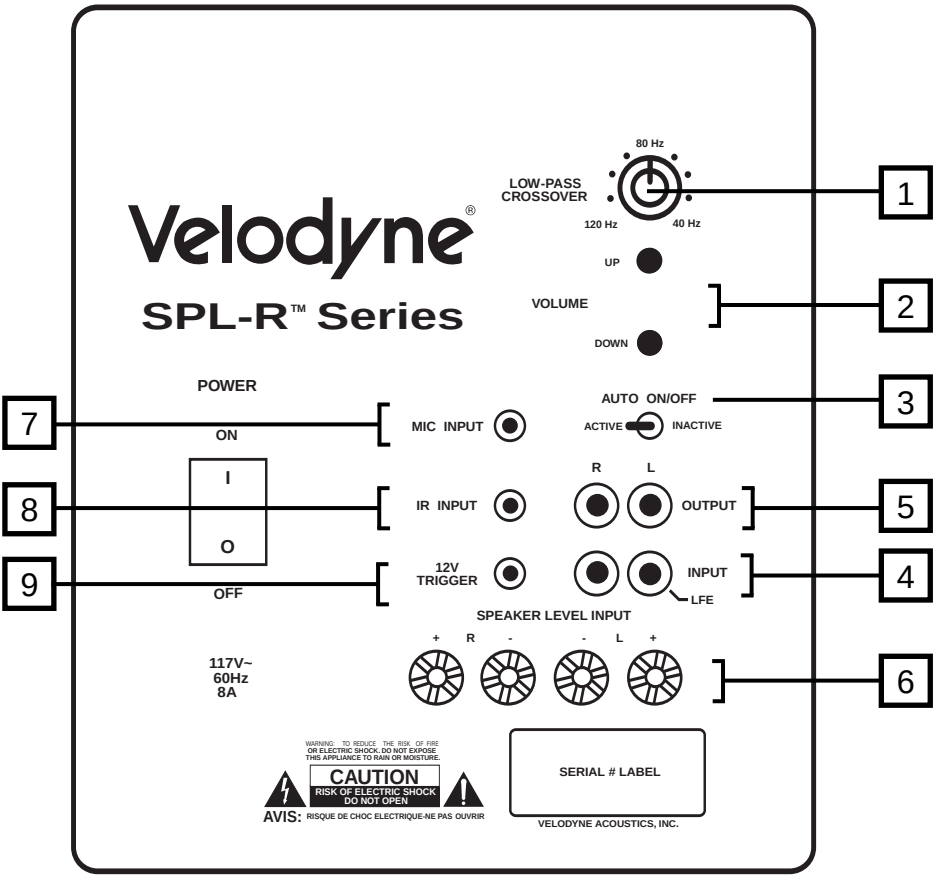

Figure 1. SPL-R Rear Panel Connections

REAR PANEL CONNECTIONS

Figure 1 shows the connections on the rear panel of the SPL-R.

Following are brief descriptions of the connections described in Figure 1. More detail on these connections can be found in the next section.

(1) LOW-PASS CROSSOVER

Use this knob to select the high-frequency range at which you wish to cut off the signal to the subwoofer. When the knob is turned all the way to the left, the Subwoofer Direct feature is invoked and the subwoofer plays all frequencies up to 200 Hz.

(2) VOLUME Control

This control allows you to balance the output from the subwoofer to the main speakers in your system. This control should be set to achieve similar volume level from between both the main speakers and subwoofer. When pressing volume up or down, the speed at which the power light blinks indicates subwoofer volume - the faster the blinking, the louder the unit plays. After the volume blinking stops, the unit will blink out the actual volume number. Slower blinks represent tens, and faster blinks represent ones. So, for example, if the volume were set at 34, after the rapid blinking stopped you would observe three slow blinks followed by four faster blinks, indicating a volume of 34.

NOTE: Volume is also controllable by using the supplied remote, when defaults are restored. The default is 30 out of 100.

(3) AUTO ON/OFF Switch

Use this switch to select between auto-on and constant on (auto-on bypass) operation.

(4) LINE INPUT/LFE Input

Connect these jacks to the LINE OUT preamp output, LFE output or subwoofer output jacks of your receiver/processor. If using the LFE output from your receiver or processor, plug the single cable into the “L” - LFE input or for more signal, use a “Y” connector and feed the signal into both “R” and “L” inputs.

(5) LINE OUTPUT

Connect these jacks to the LINE IN amp input to use the SPL-R’s internal high pass crossover. See below for a more detailed explanation of this crossover.

(6) SPEAKER LEVEL INPUT Terminals
Connect these input terminals to the speaker output terminals of your amplifier or receiver. If you use this method of connection, when you go to the receiver speaker set up menu, make sure you select the large speaker option.

(7) MIC INPUT
Connect the supplied microphone for the Auto EQ feature to this mini-jack.

(8) IR INPUT
Connect an IR repeater to this jack for use with universal remote systems.

(9) 12v TRIGGER
When this mini jack is connected, the unit remains in power-off mode until 12 volts is supplied across the two leads. Polarity is irrelevant.

REAR PANEL CONNECTIONS - DETAILED EXPLANATION

Your new subwoofer is equipped with both speaker-level and line-level inputs. Use the RCA/Phono type "INPUT" jacks when connecting your subwoofer to a pre-amp, signal processor, or line-level crossover. The "SPEAKER LEVEL INPUT" jacks connect directly to the speaker outputs of an integrated amplifier or receiver. Your amplifier section will notice no additional loading effects when you use these inputs because of their high impedance.

NOTE: Do not use both the RCA/Phono "INPUT" connections and "SPEAKER LEVEL INPUT" connections simultaneously.

Low-Pass Crossover
Both sets of inputs sum the left and right channels together and the resulting signal is passed through an adjustable low-pass crossover before being amplified. The crossover control allows you to adjust the upper limit of the subwoofer's frequency response from 40 to 120 Hz. The subwoofer's response will begin rolling off above the frequency you set this control to.
You should set the crossover frequency to obtain a smooth and

seamless transition from the subwoofer to the main speakers in your system. If your main speakers are smaller units with limited low frequency output, you may wish to choose a higher frequency (such as 100-120 Hz) than you would with larger speakers which have greater low frequency output. With larger speakers, you might start with this control set lower, such as 80 Hz.

Subwoofer Direct

Subwoofer Direct is the leftmost setting on the low-pass crossover knob and will allow frequencies up to 200 Hz into the subwoofer. If you are not using an external crossover, we recommend that you use the one provided within the unit for optimum performance.

Caution!!!

To avoid damage to your main amplifier, be sure to maintain correct polarity when making all connections. Red (positive) to red, and black (negative) to black. Be sure that all connections are tight, and that there are no loose strands or frayed wires.

Power Switch

The master power switch is located on the lower right half of the unit. This rocker style switch is the main on/off for the unit. This switch should be set to position 1 for on (up), 0 for off (down).

A Word About Your Receiver's Crossover and the SPL-R Crossover

Your Velodyne SPL-R subwoofer is designed to operate using the full range audio signal for input when using the built-in crossover (controlled by the dial on the back panel). Many home theater processors/receivers (Dolby Digital®, DTS®, THX™) have a "subwoofer out" jack that performs this same function and are designed to be used with a powered subwoofer.

In these installations, you may want to bypass the crossover in either the processor or the Velodyne subwoofer. In some cases, you may want to use BOTH crossovers. To do this, you can use both your processor's crossover and the one internal to the Velodyne sub. You should stagger the frequencies, (i.e., 120 Hz subwoofer, 80 Hz processor) for best results.

To bypass the subwoofer's internal crossover when the unit is being fed a low pass signal from another crossover, simply locate the switch marked "LOW-PASS CROSSOVER" on the rear panel of the subwoofer and turn it counterclockwise to the leftmost position. This will eliminate the internal crossover from the signal path.

NOTE: If you are not using an external crossover, you should use the built-in crossover for optimal performance. When using a single RCA sub out from the processor, connect to the "L" - LFE input in the subwoofer.

INTERCONNECT CABLES

When installing your new Velodyne subwoofer using the line-level connections, you should always use shielded phono cables. There are many decent cables available today, most any of which will work perfectly well. We do recommend that you keep the length of cable as short as possible to avoid any potential noise problems.

When using speaker level connections, use a quality speaker cable that mates well with the connectors (at least 14-gauge). Be very careful to avoid any loose or frayed strands that could result in a short, causing a dangerous condition and possible damage to your unit. Cables of extremely large size are typically not required. Extremely large gauge wire may not properly fit in the binding posts, resulting in a poor connection and possible short circuits.

Placement

True subwoofers operate at extremely low frequencies which are primarily omni-directional. While it is recommended that the subwoofer be placed on the same plane as the satellite speakers, room and system conditions often dictate otherwise. Keep in mind that frequency response and output level can be drastically influenced by placement, depending on the acoustic properties of the listening room. Typically, the optimum location for a subwoofer is in a front corner of your listening room. This location will usually offer the greatest output levels and optimum low frequency extension. The worst location for a subwoofer is

typically far away from any walls, close to the center of your room and near an opening or doorway. Avoid these locations when possible. When using a pair of Velodyne subwoofers in stereo, it is preferable to place each subwoofer by the satellite of the same channel. Typically, a minimum distance of one to two feet from your TV to the subwoofer will be adequate to avoid any magnetic interference.

Caution!
This subwoofer has electronics built into the cabinet. Do not place the cabinet next to sources of heat such as furnace registers, radiators, etc. Do not place the unit near sources of excessive moisture, such as evaporative coolers, humidifiers, etc. The power cord should be routed in such a way that it will not be walked on, pinched or compressed in any way that could result in damaging the insulation or wire.

USAGE

This section addresses day-to-day usage of your SPL-R subwoofer.

Remote Control

Figure 2 shows the remote control, enabling you to easily choose whatever listening mode you desire.

Figure 2. Remote Control

POWER

This button forces your SPL-R unit into standby mode. The woofer will not play and the LED will turn off. The unit will remain in this mode until the POWER button is pressed again. To fully deactivate (i.e. power down) the unit, turn off the power switch on the back panel.

MUTE

This button mutes the subwoofer. The light on the subwoofer will blink slowly if the unit is muted. To unmute the subwoofer, press the MUTE button again.

EQ

This button automatically EQs the subwoofer using a 6-band internal graphic equalizer. To use this feature, first plug in the supplied microphone into the Mic In jack on the back panel of the subwoofer and place the mic in your preferred listening position. Then, by pressing EQ on the remote, the subwoofer emits 12 “sweep tones” that cover the frequencies between 20 and 150 Hz. After the sweeps are complete, the unit saves its EQ settings and returns to normal operation. In order to avoid accidentally activating the EQ feature, you will need to hold down the EQ button for 1 to 2 seconds before the EQ sweep tones activate.

NOTE: Each time the EQ feature is utilized, the EQ settings for the SPL-R are reset. If the microphone is not plugged in, the SPL-R will emit a single sweep tone then cease the EQ operation. In this case, the previous EQ settings will be preserved.

PHASE

These buttons allow you to optimize the subwoofer performance for the location and your listening position. Select the switch position at which you hear the most bass. The light will blink according to the following schedule:

0 degrees	1 blink
90 degrees	2 blinks
180 degrees	3 blinks
270 degrees	4 blinks

LIGHT

If you wish, you can deactivate the blue front panel light on your SPL-R unit. To do this, press the LIGHT button on your remote. The light will turn off. To reactivate the light, press the LIGHT button again.

NIGHT

Night mode limits the maximum output of the subwoofer for later night listening or to be more considerate of close neighbors. Press the night button to turn the night mode feature on or off. Night mode, when active, is indicated by the reduced intensity of the light.

VOLUME CONTROL

This control allows you to balance the output from the subwoofer to the main speakers in your system. This control should be set to achieve similar volume level from both the main speakers and subwoofer. When pressing the volume up or down, the speed at which the power light blinks indicates subwoofer volume - the faster the blinking, the louder the unit plays. After the volume blinking stops, the unit will blink out the actual volume number. Slower blinks represent tens, and faster blinks represent ones. So, for example, if the volume were set at 34, after the rapid blinking stopped you would observe three slow blinks followed by four faster blinks, indicating a volume of 34.

NOTE: The volume can also be adjusted via the buttons on the back panel of the subwoofer. These buttons have the same effect as pressing the up and down volume buttons on your remote. The unit comes preset from the factory with the volume set at 30% of maximum setting.

PRESETS

There are 4 presets, consisting of Movies, R&B - Rock, Jazz - Classical, and Games. As a preset is chosen, the light flashes the corresponding number of times. The presets provide the following characteristics for bass reproduction:

Movies:	Maximum output and impact for explosions and other action adventure movie content.
R&B - Rock:	Provides the driving bass found in today's rock music.
Jazz - Classical:	The tightest, cleanest, lowest distortion bass.
Games:	Maximum loudness available for the impact of video games.

The following table indicates musical style and which preset is recommended for it.

MUSICAL STYLE	SUGGESTED PRESET
Action Adventure Movies	Movies
Country - Rock	R&B - Rock
Country - Soft	Jazz - Classical
Folk	Jazz - Classical
Indie Music	R&B - Rock
Pop	R&B - Rock
Rock	R&B - Rock
Alternative Rock	Jazz - Classical
Blues	Jazz - Classical
Broadway and Vocalists	Jazz - Classical
Children's Music	Jazz - Classical
Christian and Gospel	Jazz - Classical
Classic Rock	R&B - Rock
Classical	Jazz - Classical
Dance and DJ	R&B - Rock
Hard Rock and Metal	R&B - Rock
Latin Music	R&B - Rock
Miscellaneous	Jazz - Classical
Movies - Non-Action Adventure	Jazz - Classical
New Age	Jazz - Classical
Opera and Vocal	Jazz - Classical
R&B	R&B - Rock
Rap and Hip-Hop	R&B - Rock
Soundtracks	R&B - Rock, Jazz - Classical
Video Games	Games

Each preset has its own characteristics with respect to subsonic filter, volume differential and a single equalizer (EQ) in order to optimize the listening mode for the preset.

The following table shows the settings for the various presets:

Preset	Subsonic Filter Frequency	EQ Frequency	EQ Level	Volume Differential
Movies	25 Hz	35 Hz	+5 dB	+5 dB
R&B - Rock	28 Hz	55 Hz	+1 dB	+1 dB
Jazz - Classical (Reference)	15 Hz	N/A	N/A	N/A
Games	34 Hz	62	+4 dB	+4 dB

Restore Defaults

There is a feature that allows you to restore default settings for your SPL-R subwoofer. By pressing presets in EXACTLY the following order on the remote, the unit's power light will blink indicating that you have restored defaults.

1. Movies
2. R&B - Rock
3. Jazz - Classical
4. Games
5. Games
6. Jazz - Classical
7. R&B - Rock
8. Movies

When you press the presets in the above order, the power light will blink three times indicating that you have restored defaults. The unit's volume is reset to level 30 out of 100. Be sure to check the status of the Auto On/Off function after restoring defaults.

CARE OF YOUR SUBWOOFER

Do not use any harsh detergents or chemicals to clean the cabinet. Abrasives, detergents, or cleaning solutions will damage the finish on the cabinet. We recommend using a damp cloth to clean the front, back and sides.

During normal conditions, the subwoofer may be left on continuously without any problems. If you plan to leave the unit unused for an extended period of time, we recommend that you turn off the unit by the master power switch on the rear panel.

TROUBLESHOOTING AND SERVICE

Before seeking service for your subwoofer, please re-check all systems. Following is a simple troubleshooting guide to assist you.

1. Verify that the unit is plugged in and power outlet used is active.
2. Is the power switch on?
3. Is the unit receiving an input signal from your source?
4. Have all controls on the subwoofer (volume, crossover, phase, etc.) been properly set?
5. If the unit has been running at high levels, one of the protection circuits may be engaged. Has the built-in amplifier overheated?
6. Has the power button been depressed on the remote?

If the protection circuitry is active, the unit may cycle on and off until operating parameters return to normal. Under more serious conditions, the unit may shut off completely. Normal operation should return upon cooling, but you may be required to turn the power off and then on again to reset the unit.

The following conditions require service by a qualified technician:

1. The power cord has become damaged
2. The unit does not appear to operate normally or exhibits a marked change in performance
3. The unit has been exposed to water
4. Some part of the cabinet or circuitry is physically damaged

Thank You for Purchasing an SPL-R Subwoofer!

Specifications	SPL-800R	SPL-1000R	SPL-1200R
Woofer:	8” forward firing (6.5” piston diameter)	10” forward firing (8” piston diameter)	12” forward firing (9.7” piston diameter)
Amplifier: (Class D)	2000 watts Dynamic 1000 watts RMS Power	2000 watts Dynamic 1000 watts RMS Power	2000 watts Dynamic 1000 watts RMS Power
High Pass Crossover:	80Hz (6 dB/octave)	80Hz (6 dB/octave)	80Hz (6 dB/octave)
Low Pass Crossover:	40Hz-120Hz	40Hz-120Hz	40Hz-120Hz
	* 12 dB octave initial, 24 dB octave ultimate		
Frequency Response: (+/-3 dB)	28-120Hz	24-120Hz	22-120Hz
Harmonic Distortion:	<5% (typical)	<5% (typical)	<5% (typical)
Magnet Structure:	204 oz. (12.7 lbs)	346 oz. (21.6 lbs.)	346 oz. (21.6 lbs.)
Voice Coil:	2.5” Dual Layer inner/outer wind	3” Dual Layer inner/outer wind	3” Dual Layer inner/outer wind
Inputs:	Line and Speaker Level	Line and Speaker Level	Line and Speaker Level
Outputs:	Line-level, 80Hz up	Line-level, 80Hz up	Line-level, 80Hz up
Phase:	0°, 90°, 180°, 270° degrees	0°, 90°, 180°, 270° degrees	0°, 90°, 180°, 270° degrees
Video Shielded:	No	Yes	Yes
Dimensions (H/W/D): (inc. feet, grill and knobs)	10.125” x 10.375” x 12.813” (27 x 26 x 33 cm)	12.313” x 12.375” x 13.875” (32 x 31 x 36 cm)	14.25” x 14.375” x 16.5” (37 x 36 x 41 cm)
Cabinet:	Sealed enclosure	Sealed enclosure	Sealed enclosure
Warranty: (parts/labor)	Two years	Two years	Two years
Weight (approx.):	35 lbs. (16 Kg)	47 lbs. (21 Kg)	57 lbs. (26 Kg)

FOR YOUR RECORDS. . .

DATE PURCHASED_____

DEALER_____

SERIAL #_____

NOTE: Please complete and return your warranty card within ten (10) days or

Register....ON-LINE.....It's faster.....and easier
www.velodyne.com

LIMITED WARRANTY

VELODYNE ACOUSTICS, Inc. ("VELODYNE") warrants all powered subwoofers for a period of two years and full range speakers for a period of five years. All VELODYNE products have a warranty from the date of purchase against defects in materials and workmanship subject to the following conditions:

1. VELODYNE is not responsible for defects which result from the use of an amplifier or controller other than the one originally supplied with the unit (subwoofer) or defects which result from modifications or repairs made by any component of the system by anyone other than a VELODYNE factory authorized service representative.
2. This warranty is void if any repairs or service covered by the terms of this warranty are made to any component of the system by anyone other than a VELODYNE factory authorized service representative.
3. VELODYNE is not responsible for damage caused by accidents, abuse, misuse, natural or personal disaster or unauthorized modification. The VELODYNE products are not intended for professional or commercial use and VELODYNE is not responsible for damage resulting from such use.
4. The VELODYNE product warranty is limited to units that are purchased from authorized VELODYNE dealers and finalized within authorized dealer locations.
5. This warranty is nontransferable under any condition.

TO OBTAIN SERVICE

Information regarding service may be obtained from the dealer from whom you purchased the unit, or by contacting VELODYNE customer service. Warranty service must be performed by a VELODYNE factory authorized service representative within the warranty period set forth above. If VELODYNE determines the unit is defective, VELODYNE will, at VELODYNE's option, repair or replace the product at no charge if the product is forwarded prepaid to a factory authorized service representative. Products forwarded to the factory authorized service representative should be shipped securely and properly packaged, insured and freight prepaid.

Tell others what you think! Visit www.audioreview.com and write a review of your new subwoofer!

Other Velodyne Subwoofers:

Digital Drive® Series	DPS Series
DD-10	DPS-10
DD-12	DPS-12
DD-15 THX Ultra 2	
DD-18 THX Ultra 2	HGS-X Series
Digital Drive 1812	HGS-10X
Signature Edition™	HGS-12X
	HGS-15X
DLS-R Series	VRP Series
DLS-3500R	VRP-1000
DLS-3750R	VRP-1200
DLS-4000R	
DLS-5000R	VX-10

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